



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7  
901 NORTH 5TH STREET  
KANSAS CITY, KANSAS 66101

**FEB 24 2010**

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Paul Rosasco, P.E.  
Engineering Management Support, Inc.  
7720 West Jefferson Avenue, Suite 406  
Lakewood, Colorado 80235

Dear Mr. Rosasco:

Re: Draft Work Plan for Supplemental Feasibility Study, Radiological-Impacted Material  
Excavation Alternatives Analysis, for West Lake Landfill Operable Unit 1  
January 28, 2010

The United States Environmental Protection Agency (EPA) has reviewed the subject document, received via electronic mail on January 28, 2010, and provides the following comments:

**GENERAL COMMENTS**

1. The document typically refers to contaminated areas 1 and 2 as comprising Operable Unit 1 (OU 1). Note that the Ford Property should be included as part of OU 1.
2. The work plan does not acknowledge or consider the possible presence of mixed LLRW (waste that is both radioactive and characteristically hazardous) in the landfill. This issue affects many aspects of the work plan and Feasibility Study (FS) including but not limited to commercial disposal options, disposal costs, worker safety, manifesting and placarding for transport, and design requirements for the on-site landfill cell. The work plan should explicitly acknowledge this issue and describe how it will be evaluated in the FS. Also describe how asbestos and other contaminants will be addressed. Given the waste material in question, it is likely that asbestos and hazardous wastes will be encountered during excavation.
3. The Supplemental FS (SFS) should address development of either a Site Security Plan or an Emergency Plan, especially contingencies in regard to methane gas pockets that could present an explosion hazard while excavating.
4. No mention was made of a site radiological environmental monitoring program for the purpose of ensuring that the public is protected from off-site releases of radioactive material during implementation of either "complete rad removal" alternative. This should

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be added to the document, preferably to Section 2.12, Health and Safety Requirements, and would potentially include perimeter air monitoring stations (radon and radioactive particulates and possibly asbestos) as well as environmental dosimeters.

5. No specific mention of the Multi-Agency Radiation Survey & Site Investigation Manual (MARSSIM) was made when discussing the sampling and verification process to demonstrate achievement of the cleanup criteria. Suggest adding a statement that addresses the use of MARSSIM for this process.

## **SPECIFIC COMMENTS**

6. Section 1.0: Include information on the previous FS (and existing Record of Decision) within the introduction. Briefly mention the alternatives that were evaluated in the previous FS.
7. Section 2.1, page 3, first paragraph: Explain the justification for applying the surface cleanup criterion of 5 pCi/g above background levels for total radium and total thorium to the subsurface layers rather than 15 pCi/g.
8. Section 2.1, page 3: For purposes of this evaluation, "complete rad removal" is defined to mean attainment of the cleanup standards in 40 CFR 192 consistent with EPA guidelines on how these standards may be used as Applicable or Relevant and Appropriate Requirements at the Comprehensive Environmental Response, Compensation, and Liability Act sites. The discussion should clarify that these standards generally apply to the cleanup of publicly accessible areas and would not generally be used in the context of removing wastes from a landfill. The intent here is to identify a goal that, if achieved, would result in a landfill that did not need to be managed for its radiological content.
9. Section 2.1, page 4: Greater justification for the uranium cleanup level should be provided. For purposes of this evaluation, EPA suggested the cleanup level for uranium may be borrowed from the cleanup criteria for unrestricted use and unlimited exposure established for the St. Louis FUSRAP sites. The cleanup level is U-238 greater than 50 pCi/g above background, calculated using U-238 as a surrogate for total uranium. See the Record of Decision for the North St. Louis County Sites, Section 2.8.2, Derivation of Remediation Goals.
10. Section 2.1, page 4: The Supplemental FS must also consider data contained in the Radiological Survey of the West Lake Landfill, prepared for the NRC by Radiation Management Corporation, 1982.
11. Section 2.1, Page 5: Items 4, 5, and 6 seem extremely subjective. If there is a scientific method for developing an equation or correlation between these two data sets, it should be referenced here. Otherwise, EPA recommends that the down-hole gamma values be used in a qualitative manner only as suggested in bullet 6.

12. Section 2.1, Page 5: Address whether there is a provision for conducting model verification and validation for the correlation between the downhole gamma values and the laboratory analytical sampling results. Also, address how spatial distributions between the downhole gamma values (reported as peaks per boring) and the samples that were taken at five-foot intervals are to be correlated.
13. Section 2.3, page 8: To the extent possible, the Supplemental FS should describe the three-dimensional distribution of the radiologically contaminated soil within the overall waste mass to be excavated. This information will directly affect the soil/waste segregation evaluation proposed in Section 2.6.
14. Section 2.3: Add an appropriate reference for the AutoCAD Civil 3D 2010 software in the list of references.
15. Section 2.3: There are several references to setting aside overburden waste as noncontaminated material. While this may be a viable method during excavation activities, the disposal and/or disposition of overburden as "contaminated" material should at a minimum be considered as a "worst case scenario" approach relative to the costs incurred from additional handling, sorting/segregating, and staging activities. This could be accomplished in the cost sensitivity analysis.
16. Section 1, Introduction, fourth paragraph, versus Section 2.3, Page 7: Address the apparent conflict between the statements in these two sections. The Section 1 statement reads, "Additional field investigations or laboratory testing are not included in the scope of this effort and will not be performed." On the other hand, the Section 2.3 statement reads, "The project team will use data obtained in Sections 2.1 and 2.2 to identify the waste materials containing radionuclides above the cleanup levels using three-dimensional orientations within the overall waste mass." The second statement seems to indicate that additional sampling will be conducted as part of the scope of work.
17. Section 2.4.2: Off-road trucks are suitable to implement on-site disposal in a new engineered landfill. On-road trucks are required if the waste is transported and disposed off-site. If rail transport is used for off-site disposal, a transfer facility between the trucks and rail cars will be required.
18. Section 2.4.4: The text specifically states that "literature will be reviewed and historical experience used to attempt to approximate these bulking and compaction factors, as they will be affect project schedules, costs, and quantities." It appears that this verbiage is only in reference to the on-site disposal option. It should be stated that this phenomenon will also be taken into account for off-site disposal as weight of contaminated material per load will be a factor in off-site disposal costs.
19. Section 2.4.5: The material handling plan will need to include procedures for identification of the contaminated materials during the excavation process. The contaminated material is not anticipated to be located in simple horizontal layer but to be interspersed with other wastes.

20. Section 2.4.6: There are no references to general air monitoring of the area to be utilized as an effective tool for assessing the effectiveness of various dust control methods as well as providing documentation for off-site fugitive emissions.
21. Section 2.4.9: If off-site disposal is considered, decontamination of trucks prior to leaving the site should be included in the evaluation of the alternative.
22. Section 2.5: If the intent is to remove individual layers of the contaminated material, the need to get real time validation testing is critical to performing this work in an efficient cost-effective manner. The time to get validation results will have a major impact on productivity if excavation must be stopped to get results. Since the material is located in individual layers within the landfill mass, this testing will significantly impact productivity if work must be started and stopped to classify material. Over-excavation of zones will increase material but may be more practical. Impacts and accuracy of the verification program based on the understanding of the deposition of these materials should be addressed.
23. Section 2.5: The Verification Sampling Plan will most likely require detailed radiological walkover surveys as part of the confirmation sampling process. Consequently, the costs associated with verification sampling should be comprised of more than those costs associated with sampling and analysis of soil samples. The labor of the walkover process should be taken into account when evaluating the cost of Verification Sampling.
24. Section 2.6: The discussion on limitations/constraints to segregate the waste material will be crucial to the determination of the ability and the productivity achieved in successfully removing this material. The schedule shows five days for this evaluation. Is this a sufficient amount of time?
25. Section 2.7: Special DOT packaging should be considered for rail shipments (e.g., railcar liners with specific closures). Additionally, an exemption from specific packaging requirements also may be required. The cost of packaging per railcar combined with the number of estimated loads should be part of the evaluation process when considering commercial disposal alternatives.
26. Section 2.7: Permitting restrictions, if any, for hauling contaminated material should be discussed and addressed. Traffic impacts on the local roads and community should be addressed based on the volume of material to be removed.

If rail transportation is considered, discussions with the railroad should be included to check railroad rules and regulations. Often railroads operate under their own regulatory environment.

27. Include a map of site features and proposed cell locations mentioned in Section 2.8.1.

28. Section 2.8.1.2: Check siting constraints to determine if proposed new cell locations will violate any Missouri Department of Natural Resources (MDNR) landfill buffer zones or geologic constraints. Discuss whether the new landfill cell would require a new permit from MDNR.
29. Section 2.8.1.2, Page 16, second full paragraph: The last sentence states that owners would not consider termination of their leases. Is there a dollar value associated with the buyout of these existing leases that can be quantified?
30. Section 2.8.1.3: Include an evaluation of the impact a breach in the levee (during a 500-year flood event) would have on the waste currently on the subject property or on an engineered cell on the border of the flood plain boundary. Would the flood waters reach the elevation of the site under this scenario? What flow rates would be expected on the perimeter of the flood plain? What capacity would the water have to erode or impact earthen structures and wastes on-site?
31. Section 2.8.2.1, page 17: EPA's intent was the reverse of what is stated. The components required by the solid waste regulations should be used only to the extent that they do not compromise the relevant and appropriate UMTRCA requirements including longevity and radon mitigation features. For example, synthetic liners may be used so long as the cell design life requirements are not compromised.
32. Section 2.8.2.2, two-foot compacted clay liner, page 18: The thickness sufficient to provide radon attenuation should take into account increased radon generation resulting from ingrowth of radium over the design life of the cell.
33. Section 2.8.2.3, page 19: Will the proposed leachate collection system be able to prevent punctures of the synthetic liner by the overlying waste?
34. Section 2.8.3, page 20: It is not clear whether the FS addendum will evaluate all three of the locations proposed in Section 2.8.1.1 for the on-site cell, or just one location. This should be clarified.
35. Sections 2.8.3, 2.8.6, and 2.9, page 20: These sections will need to include an evaluation of how the on-site disposal cell liner and cap systems will transition into the caps and liners for the surrounding OU 1 and OU 2 areas.
36. Section 2.9: The discussion in Section 2.9 seems to indicate that complete removal of the radiological waste from the site may not occur or that there may be significant radiological wastes left on-site. If significant radiological wastes are left on-site, would the alternative comply with the intent of the complete removal option?
37. Section 2.11, page 22: Where appropriate and/or where site-specific data are not available, the risk assessments should use EPA Risk Assessment Guidance methods and exposure factors. The risk assessment must consider chemical toxicity and all contaminants of

concern including nonradiological constituents. Incorporate any updates to toxicity factors since the Baseline Risk Assessment.

38. Section 2.11, Page 23, second paragraph: Discuss the need to gather meteorological data applicable to the site (likely obtained from Lambert Airport) in order to assess short-term radiological risks.
39. Section 2.12: It would be reasonable to assume that less handling/placement is associated with off-site disposal which could mean less short-term exposure to site workers. This should be a consideration when evaluating off-site disposal relative to an on-site disposal cell.
40. Section 2.12.1, Page 24: Discuss the potential need to consider nearby workers unaffiliated with OU 1 work with regard to dosimetry and air monitoring programs (e.g., those potentially impacted by transportation activities and fugitive dust emissions). This was briefly mentioned in Section 2.4.9 but is not discussed in the Health and Safety Requirements section.
41. Section 2.12.1, page 24: Routine fecal monitoring is not a standard health physics practice even in the presence of thorium-230. Monthly urinalysis sampling would be the major component of a bioassay monitoring program for a site contaminated with uranium, radium, and thorium, with fecal analysis utilized only in the event of a suspected intake.
42. Section 2.12.2, page 25: Air sampling is only briefly mentioned here with regard to determining the need for respiratory protection. However, an air sampling program should be discussed in further detail in this work plan to include the possibility of breathing zone, general area, and perimeter monitoring equipment for detection of radioactive particulates as well as radon monitoring in support of assessment of radiological doses for site workers and the public.
43. Section 2.12.3: Assume that a Certified Industrial Hygienist should, at a minimum, be available for consultation given the variety of potential hazards that exist at this site. Additionally, the estimate of required Rad Survey Instruments may need to be increased. It currently appears to be underestimated.
44. Section 2.12.3, page 25: In addition to the team of radiation safety personnel, also need to mention construction safety personnel and possibly industrial hygiene personnel (unless others are cross trained to perform industrial hygiene monitoring).
45. Section 2.12.3, page 25, Instrument Bullet List: All instrument types would need a backup in the event of malfunction. Suggest increasing the number of GM pancake survey meters.
46. Section 2.12.3, page 25, Instrument Bullet List: It is likely that more than two sodium iodide (scintillation) detectors would be needed for doing walkovers of the property. Suggest increasing this number.

47. Section 2.12.3, page 25, Instrument Bullet List: In addition to the survey meters, area radon gas and radon daughter monitors would also be needed in order to assess potential radon dose to site workers.
48. Section 2.12.3, page 25, Instrument Bullet List: Briefly list air monitoring equipment to be used. "Chemical sniffers" must be better defined.
49. Section 2.12.4, page 26, second paragraph: Add smears to the list of consumables discussed in this paragraph. In addition, add supplies related to radioactive waste handling (e.g., yellow radioactive trash bags) to the list of consumables discussed in this paragraph.

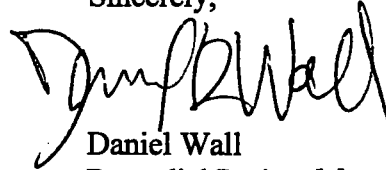
## **ADMINISTRATIVE COMMENTS**

50. Table of Contents, 2.8.2.1, 2.8.6, and 2.10: Page numbers need to be right justified with the other page numbers.
51. Add a List of Acronyms and Abbreviations to the document.
52. Page 4, second paragraph: Change the text in question to "...representative background concentrations and the appropriate risk-based remediation concentrations listed in the OSWER directive."
53. Section 2.4.6, page 10, line 5: Add the words "of a" between "application" and "daily soil cover".
54. Section 2.8, Page 14, third line of opening paragraph: "above the clean levels" should be "above the clean-up levels".
55. Section 2.8.1.2, Page 16, Paragraph 3, line 7: The verbiage "and since that time" is unclear.
56. Section 2.8.1.2, Page 16, Paragraph 3, line 9: Change "it likely" to "it is likely".
57. Section 2.8.2.1, Page 17, Paragraph 3, line 8: Add "MDNR" before "Solid Waste Regulations".
58. Section 2.8.1.2, Page 16, second paragraph: Reword the following sentence: "Use of this area would *either* require excavation and relocation of the stockpile soil prior to construction of a new on-site engineered disposal cell." The word "either" suggests a comparison of two activities, but only one appears in the sentence.
59. Section 2.8.5, Page 20: Add the word "will" between "Supplemental FS" and "comply".
60. Section 2.12.2, Page 24, Line 1: Change "where loose contamination is know" to read "where loose contamination is known".

61. Section 2.12.2, Page 25, line 9: Change "contaminates" to "contaminants".
62. Section 2.12.2, page 25, line 14: Change "tool" to "tools".

A final work plan incorporating these changes must be provided within fifteen (15) days of your receipt of this letter. If you have any questions, you may contact me at (913) 551-7710.

Sincerely,



Daniel Wall  
Remedial Project Manager  
Missouri/Kansas Remedial Branch  
Superfund Division

cc: Shawn Muenks, MDNR  
Rich Kapuscinski, EPA Headquarters (e-mail only)  
Charlotte Neitzel, Holme Roberts & Owen (e-mail only)  
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